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ABSTRACT

This 6-year project sought to develop programs to impact student academic success and retention. Three separate programs were developed to serve the learning improvement needs of different constituents and situations. All programs were offered at a large, land-grant research university. The Residential Success Program was designed to provide students with a structured living environment oriented to developing effective study abilities and success attitudes. Academic, social, cultural, and personal development were integrated into a single retention program with services from housing, advising, recreation, and student development being coordinated in a residence hall to provide a guided living situation. The Military Life Style project was a learning improvement program for freshmen, integrated into an existing military training program. Program components included an eight-session seminar to introduce freshmen to college success skills, a military instructors workshop, and use of scholastic officers to monitor and promote academic achievement. College Success Strategies is a three-credit course designed to teach students the skills, strategies, and attitudes important to academic success. Results of evaluation of each program are reported. Seven themes that illustrate the issues, opportunities, and challenges associated with learning improvement programs are identified. (Contains 21 references.) (JDD)

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# Academic Improvement in Higher Education

## A Search for Enduring Effects

By

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Considerable theoretical (e.g. Sherman, 1985) and empirical (e.g. Britton and Tesser, 1991) effort has been directed at understanding and generating academing improvement programs in higher education. There has been an enduring belief, if not evidence, beginning in the early 20th century (e.g. Whipple & Curtis, 1917) that intervention programs can influence how, when, why, where and/or what students study. Many study improvement programs (e.g. Ellis, 1985) and texts (e.g. Pauk, 1974; Sherman, 1984) exist; but, few have a solid basis of any research and even rarer are longitudinal or follow-up studies available.

Selection of study improvement practices appears to be based on one of two options. The first is a reasonable set of assumptions that appear consistent with accepted theory and experience. The reading strategy SQ3R is an example. Proposed about 50 years ago (Robinson, 1946), SQ3R has been widely imitated and recommended by study improvement specialists (e.g. Pauk, 1974) and even text book authors (e.g. Feldman, 1990). Yet, on review of the research on SQ3R and similar reading/study heuristics, there appear to be fewer than 20 research studies (including dissertations) investigating the efficacy of SQ3R. Many of these studies contain serious methodological flaws. In addition, the results and conclusions from these studies are far from unequivocally supportive of SQ3R as an effective strategy to improve reading and study.

The second basis for selecting strategies to include in study improvement programs is well designed research. For example, a study by Kiewra and DuBois (1991) investigated the efficacy and functions of note taking strategies. This study found that note-taking is a complex activity that includes more than encoding and/or external storage. While effectively demonstrating the differential results of three note-taking techniques, this study also illustrates a problem associated with using the results for selecting learning improvement strategies - it was conducted in a little over one hour with no follow-up. The authors made no claim to have had lasting impact on students; yet, the results are likely to be interpreted to influence how students should take notes.

The purpose of this project covering 6 years was to design, initiate, and deliver programs to impact student academic success and retention. The three programs reported were developed based on current practice in academic learning and principles drawn from behavior change theory. A main goal was to build a basis of experience and data to support informed decisions about what to teach, when, to whom, and how in learning improvement programs in higher education.

Three separate programs were developed to serve the learning improvement needs of different constituents and situations. All programs were offered at the same institution - a large, land-grant, research university. Each program is described below.

# THE RESIDENTIAL SUCCESS PROGRAM

The Residential Success Program (RSP) was designed to provide students with a structured living environment oriented to developing effective study abilities and success attitudes. Academic, social, cultural and personal development were integrated into a single comprehensive retention program. Services from housing, advising, recreation, and student development were coordinated in a residence hall to provide a guided living situation. The goal was to develop success skills, personal attribution, and self-sufficient, independent learning skills. The program was based on a developmental model providing high structure over choice situations initially with moderate and low levels of structure as the academic year progressed.

## METHOD

The program has been situated in two residence halls. During the 90-91 academic year, students lived on a mixed gender floor in a hall that accommodated 26 students in a single unit. The program was relocated for 91-92 and 92-93 to a different residence hall and accommodated 87 students on a single floor separated by gender in adjacent wings of the building.

Students were invited to join the program by letter, phone, and through advisors. A major goal in selection was to create a group that was diverse by race, background, gender, interests, and admission characteristics. This was accomplished initially by creating stratified samples from the total freshman applicant pool and randomly selecting. In the 91-92 and 92-93 cycles, the offer of joining the RSP was made to all returning and incoming students in on-campus housing. Selection was then made from the applicant pool, roughly four times greater than the program could accommodate. Overall, for dichotomous variables, the program was roughly split by gender and minority/majority status.

### Program Design

Students in both groups were administered two questionnaires during the beginning of the first and second terms and at the end of the second terms. The first, the Study Survey, was adapted from an instrument develop by Entwistle (1983). It contains scales which address factors associated with academic success and failure in higher education and focuses on cognitive actions which facilitate and inhibit effective learning. The Study Survey includes four sub-scales: Meaning Orientation, measuring the extent to which learners search for comprehension; Reproducing Orientation, measuring the extent to which study is oriented to surface mastery; Achieving Orientation, measuring the tendencies to compete, procrastinate and devalue study; and Styles and Pathologies for Learning, measuring typical facilitating and impeding study actions.

The second instrument used was the Student Adaptation to College Questionnaire (SACQ) (Baker & Siryk, 1989). According to its authors, the SACQ "is designed to assess student adjustment to college." It contains four subscales: The *Academic Adjustment* subscale consists of 24 items that refer to various educational demands characteristic of the college experience. The 20 items that make up the *Social Adjustment* subscale are relevant to the interpersonal-societal demands inherent in adjustment to college. The *Personal-Emotional Adjustment* subscale contains 15 items aimed at determining how students feel psychologically and physically--the degree to which they experience general psychological distress and/or any associated somatic problems. The *Goal Commitment/Institutional Attachment* subscale (hereafter referred to as the *Attachment* subscale) is composed of 15 items designed to explore students feelings about being in college, in general, and the college they are attending, in particular. This subscale focuses primarily on the quality of the relationship or bond between students and institutions.

**Program Objectives and Activities**

OBJECTIVE 1: Students will improve their understanding and use of academic success skills and strategies.

*Program Activities to Meet Objective 1*: Skill development programming included: (1) regularly planned and special skills group sessions; (2) individual skill development in response to problems identified in interview sessions and skills requested by individuals; (3) a one credit seminar teaching study skills (92-93 only); and (4) senior student models.

OBJECTIVE 2: Students will develop effective study success strategies.

*Program Activities to Meet Objective 2:* Programs were presented throughout the academic year to provide students with skills related to success strategies on study planning, text reading, writing for success, memory development, personal goal development, how to take exams, and dealing with professors. These were usually 35 to 50 minute informal seminar format programs focusing on actual study issues. In addition, students were provided individual counseling relative to specific study issues and advised about using their talents to achieve success. Finally, all students were offered focused tutoring and organized group study.

OBJECTIVE 3: Students will develop critical thinking skills.

*Program Activities to Meet Objective 3:* Students were encouraged and supported to develop critical thinking skills. They were taught and regularly advised to use a systematic decision heuristic to make judgments about problems, their studies, and other issues. A mentor was made available to every student to serve as an unofficial advisor, support person, and model.

OBJECTIVE 4: Students will develop effective living skills associated with college success.

*Program Activities to Meet Objective 4:* To help students develop effective living and success skills programs on topics such as communication, interpersonal interaction, parents, substance abuse, pursuing personal interests, and involvement in campus extracurricular activities. These were 35 to 50 minute informal seminar format programs in which students could address personally relevant issues. In addition, students were regularly advised to consider the implications of their choices, to apply critical thinking skills, and to seek information.

## RESULTS

The results of this program were evaluated from two perspectives. Qualitative data were gathered through student questionnaires and structured observation. These data provide context to understand influences, activities, and responses. Quantitative data were also collected using formal questionnaires and the university data base. These data were compared with a cohort of students selected to match the initial RSP group.

### Context Data

Students involved in RSP appeared both satisfied and active as members of the program and university community.

- They appeared to recognize the appropriate times to use academic learning skills and to apply these skills frequently.
- They were able to articulate the concept of systematic study and to adopt this concept as a general study strategy.
- Of 111 students involved, at least 100 appeared to use some learning skills taught during their study and approximately 60% of students appeared to use these skills regularly.
- About one-third of the students participated regularly in tutoring programs.
- All students were involved in non-academic campus activities such as intramural athletics, religious organizations, service clubs and student politics.
- Students appeared aware of sources of assistance and the means by which help could be received.

- Students appeared to demonstrate social responsibility and be personally accountable for their behavior. Residential incidents requiring official responses and vandalism were low for these students.

**Formal Data**

*Study Survey* - Overall there were no significant differences between the RSP and comparison groups on any of the Study Survey scales. Because these scores are not standardized it is not possible to relate the obtained scores to a broader behavioral representation of students (See RSP - Table 1).

*SACQ* - There were no significant differences on the SACQ for time of administration, group, or ethnic identity. This instrument is standardized and, while there is no change in scores, the obtained scores represent relatively positive adjustment to college life (See RSP - Table 2).

*Grades* - Student grades were not significantly different between the RSP and comparison groups. However, the grades of both groups appeared different from the total University grade averages (See RSP - Table 3). This may indicate that the composition of these groups was quite different from the characteristics of freshman student in the university.

*Retention* - Student retention was not significantly different between the RSP and comparison group. This finding held for comparisons by ethnic identification and academic term. These data, however, should be considered indicators rather than definitive as the numbers of students in several conditions were quite small (See RSP - Table 4). It is reasonable to question the representativeness of the norming sample of the SACQ which makes interpretation of these data problematic especially for those from non-white ethnic identification classifications.

*Developmental Effects* - It is possible that effects of RSP accrued over time and will reach significance only after several semesters of incubation. Two trends indicate that developmental effects may appear. First, the 90-91 group appeared more organized ($F=2.07$, df 79, 24, $p<.05$) and, second, the 90-91 group appeared more focused in their study ($F=2.06$, df 24, 79, $p<.05$) than the 91-92 group. However, the interpretation of accumulating effects must be tentative until additional data are available for support.

## CONCLUSIONS

Two outcomes are particularly noteworthy. First, much research indicates that it can be expected that student performance will be different by race (Sherman, 1992). Traditionally, Black students do not achieve at the same levels as white students despite comparable admission characteristics. For RSP students there were no achievement differences by race that reached significance. It may be that this program reduced the impact of those factors that separate achievement by race.

Second, the RSP appeared to be an effective way to introduce students to the "network of success." Students had more opportunities to interact significantly with faculty and university officials. These included special dinners, meetings, presentation, and informal conversations. Continued follow-up with these students will indicate the extent to which these trends will influence the ultimate goal of RSP - to promote retention and graduation.

## MILITARY LIFE STYLE (MLS)

This project was designed to deliver and evaluate a broadly based learning improvement program which was integrated into many aspects of student life. The approach used was based on problem solving routines, particularly decision-making. The unique feature of this project was that the learning improvement program was integrated into an existing and long established military training program.

### METHOD

Students involved were composed of freshmen, who were housed in separated living quarters on the campus of a large land-grant university. Following a military lifestyle, all of the students in the program wore uniforms and were organized into units. The major emphasis of the group was academic success and military leadership training. Consequently, students were involved in regular academic studies, military oriented classes as well as military skill training. Many of the members' activities revolved around group life including social activities, living arrangements, and study. To promote academic success, each unit had an appointed scholastic officer. Times were designated each day in the residence halls for study and enforced as quiet times.

**Program Design**

The program contained three components.

1. *College Success Strategies Seminar.* An eight-session seminar was designed to introduce freshmen students to college success skills. The goal of this course was to assist new students beginning college careers with effective time management skills, the acquisition of the concept systematic study (Sherman, 1984), and accompanying effective learning skills.

2. *Military Instructors Workshop.* An introductory workshop was designed for military instructors to acquaint them with the goals of the program and the purposes and procedures of the college success strategy seminar. The goal of this workshop was to solicit instructors' cooperation to support and to encourage students' use of effective academic learning skills in their classes.

To keep instructors informed of the content of the seminar, regular reports were distributed which described the seminar content, the skills that the students were being taught and suggestions which instructors could use to support this seminar in their own classes.

3. *Scholastic Officer Program*. Each unit had several upperclassmen assigned to monitor and promote academic achievement. These students, called scholastic officers, were purposefully included in the program design. However, the scholastic officers' duties were rather loosely organized initially with poorly defined responsibilities. During the second year, the scholastic officers' duties were more clearly defined and monitored. In addition, a consulting capability was established through which scholastic officers could receive assistance from study skills instructors in working with students who were experiencing academic problems.

Begun in 1987, this program has undergone many changes to increase effectiveness and impact on students. For example, initially course grades were pass/fail but have since been changed to a letter grade in order to promote more consistent student performance and to provide a reward structure commensurate with student effort. Second, the course component of the program was made more formal and more directly focused on academic course work. Third, the scholastic structure of the organization was made more formal and extensive.

## RESULTS

First, over the six years of this program, the entering characteristics of all groups have been essentially similar. Characteristics investigated were high school class size, class rank, GPA, and SAT scores. Only class size (twice, '90, '92) and high school rank (once, '88) were significantly different from the comparison cohort, the class that began in 1986 (class of '90). See MLS - Table 1 for a comparison of entry characteristics.

Second, the effect on student attitudes appear modest based on scores from the Inventory of Learning Processes (ILP) (Schmeck, Ribich & Romanaiah, 1977). The ILP is a 62 item self report inventory that includes four factors: Synthesis analysis (18 items), study methods (23 items), fact retention (7 items), elaborative processing (14 items). The ILP was developed "to assess individual differences in learning processes within the academic setting, utilizing behaviorally oriented statements" (p. 427). Students primarily reported changes on the study methods scale of the ILP. This is the target content for the success strategies course and to some extent confirms that some impact was made by the course. An academic locus of control instrument revealed no changes over the first semester; however, the initial scores indicated a relatively internal orientation so it was unlikely there would be change. It may be that this program attracts students who have a relatively strong sense of personal efficacy.

Third, student evaluations of the course have remained relatively constant and positive. Overall and across the six years of the program using data available from summative course evaluations, students report a positive opinion on the quality of course (a rating of 3.2; 1=poor, 2=fair, 3=good, 4=excellent). However, students find the course less stimulating (2.3) as well as do not value the course assignments as highly as the overall quality of the course (2.5). Students do report that using the skills taught is helpful, particularly memory skills. One area of assistance that students report is less helpful is the response they receive from their most immediate student scholastic official.

Fourth, a consistent result has been a significantly greater overall academic performance for all but one class based on grade point average (GPA). That is, when compared to the '86 cohort, all groups except the class entering in 1990 achieved significantly higher grades than the '86 group (see MLS - Table 2). This effect appeared in the Fall term when the success course portion of the program was taught. However, this increased academic achievement was found in subsequent terms for only the '89 group in the Fall of the second year and Spring of the third year. For the '91 group, a significant difference was found for the Spring of the freshman year. While there is some variation, two trends may be noteworthy. First, grades appear to be relatively consistently higher for the program groups than the comparison group across all terms. This trend seems stronger in more recent years. Second, the program appears to yield more enduring significant differences in recent years. This may be a consequence of changes instituted and the development of stronger traditions of academic success within the group.

Fifth, retention and graduation rates appear comparable for the two groups that have completed four and five years (see MLS - Table 2)

## CONCLUSION

This program appears to have influenced academic performance especially during the term students were enrolled in the academic learning skills course. Students appear to value the program as positive and report at least modest use of the skills and attitudes taught.

One key change made in the course in the past two years from earlier years was to orient strategies and skills more directly to academic curricula. The goal for this change was to increase the authenticity of the study/learning ideas and skills presented. In addition, the role of the scholastic command structure was more strongly emphasized. Changes included more clearly specified duties and procedures as well as more direction from the professional staff. The data from the '91 group appear to show significant changes across time which may indicate an enduring effect.

Nonetheless, the most apparent conclusion is that the effects of this program are largely limited to the time when the success skills are presented during the course. Little transfer seems evident.

## COLLEGE SUCCESS STRATEGIES

College Success Strategies (CSS) is a three credit course designed to teach students the skills, strategies, and attitudes important in academic success. It has been offered since 1986, and has maintained the same purpose though there have been changes in format, teaching methods, and general focus to improve its effectiveness.

### METHODS

Students are drawn from two sources. The primary source is students who participate in an institution-wide student retention program (SRP) who are given priority to enroll in CSS during the fall semester of their freshman year as a way to increase their initial success in college. The SRP creates a pool of students that includes all Black entering freshmen and a group of white freshmen who are defined as "high-risk" on the basis of their entry characteristics, primarily combined SAT scores below 900. Students enrolling in CSS are randomly selected from the SRP pool and enrolled in CSS. Other students may also enroll if space is available. In the spring semester enrollment is open; thus, the second group that supplies students is the student body at large. Typically, the fall sections of CSS are composed of freshmen, most of whom are SRP participants, while students in the spring sections tend to be more varied by academic level. Most of these students choose CSS on the advice of their academic advisors.

#### Program Design

The content of CSS has focused primarily on the following topics: text reading, listening, note taking, memory, test-taking, effective study strategies, time and effort management, and developing a positive attitude. Students are taught to use a systematic approach to learning and study, usually referred to as a three-step process: *Prepare, act*, and *follow-up*. For instance, in preparation for reading, students learn to survey and set study goals. Study/learning actions include reading actively using skills such as relating new information to current knowledge, asking questions, visualizing information, and taking notes. To follow-up, students are taught to outline from memory, summarize, check study goals, or make up test questions. CSS - Table 1 summarizes the skills typically taught in CSS. In order to apply these skills consistently and effectively, students must not only be familiar with step-by-step study methods, but must also be able to *think* systematically. Therefore, much of the course emphasizes thought processes involved in problem solving, critical thinking, and reflection. In

addition, student attitudes are often discussed in relation to motivation, self-confidence, and long-term goals.

In CSS sections offered from 1988 to 1991, the course material was divided into a series of units which corresponded to the chapters in the required text (Sherman, 1984). Typically, the agenda and assignments for the week were presented on Mondays, on Wednesdays students practiced skills, and on Fridays students demonstrated skills and strategies or worked on group projects which required application of skills. Students were required to bring texts and notes from two other courses in which they were enrolled, so that in-class projects could involve relevant materials and be of immediate practical value. To encourage a sense of academic urgency, responsibility, and timely study, each week was treated as an independent unit. This strategy was used to emphasize the importance of working consistently throughout the term, because once a unit was completed, students were not able to improve their weekly scores. It was important for them to set a standard they wished to achieve and to maintain a schedule of success. However, students were able to earn bonus points, which could be applied to any weekly period, based on the excellence of their work.

Beginning the spring semester of 1992, more emphasis has been placed on students' reflective awareness of their conceptions of study and learning processes. The application of specific skills is still the primary instructional focus, but students are also required to articulate their views regarding topics like motivation, success, and responsibility for learning, and to consider how their actions support or contradict their beliefs about these views. Through journals, papers, class discussions, and presentations, students are confronted with questions such as: *Where does responsibility for learning lie? How does college success relate to your general visions of success? Do your daily decisions reflect your long-term goals?* The overall aim of these activities and assignments has been to provide more opportunities for students to learn by talking about study and learning in new ways.

## RESULTS

Typically, students' responses to CSS have been overwhelmingly positive. Students tend to earn higher grades in CSS than in their other courses, and many report that while taking CSS their grades in other courses are higher than they would otherwise have expected. In six sections of CSS taught between the fall semester of 1990 and the spring of 1992, students were asked to evaluate the course using a form which consisted mainly of open-ended statements. These evaluations were completed anonymously; in addition, the students were aware that the instructor would not read the evaluations until after final grades were submitted, so their comments would in no way affect their grades (The open-ended statements were as follows: 1) The most beneficial things I learned were... 2) To improve this course I would change it by... 3) The things I liked best about this course were... 4) The things I liked least about this course were.... 5) I have changed in the following ways as a result of what I learned in this course.).

One of the items on the evaluation form asked students to rate the course's helpfulness "regarding improving my potential to succeed academically." Of the 139 forms completed by students, 79 rated the CSS course as "very helpful," while 58 rated it as "helpful," and 2 students rated it as "of little help," and none indicated that it was "of no help." Using a 4 point liberal scale (4 = "very helpful"," 1 = "of no help") the overall rating for these sections was 3.5. Most students identified at least two specific skills or strategies that they believed had particularly impacted their performance in other courses. In addition, most respondents reported personal changes resulting from their participation in CSS, such as greater confidence, less procrastination, improved memory, more positive attitudes, increased study time, reduced stress, and general improvements in use of study skills. Most students reported that the amount of time and effort required in CSS is "average" or "above average" compared with other courses they had taken.

Because CSS is designed to serve academically "at risk" students, a second measure of the effectiveness of CSS is the retention rates of the targeted student population. As CSS - Table 2 shows, it does appear that CSS has had a positive impact on retention. Of freshman students who enrolled in CSS, 121 of 139 (87%) returned for their sophomore year, while 421 of 559 (76%) comparable students not taking CSS returned.

A third measure of the effectiveness of CSS is students' grades (GPA), which is the average grade received per course hour taken using the following scale: A = 4.0; A- = 3.7; B+ = 3.3; B = 3.0; B- = 2.7; C+ = 2.3; C = 2.0; C- = 1.7; D+ = 1.3; D = 1.0; D- = 0.7.

For students who took CSS from 1989 to 1991, the average GPA in the term in which the course was taken was considerably higher than the average GPA during the term following CSS enrollment (see CSS - Table 3). Data comparing the term GPA's of similar students not taking CSS are not available. One interpretation of this difference may be that grades awarded in CSS are inflated relative to other courses. This does seem to be the case (see CSS -Table 4). However, when GPA is calculated without CSS grades, the average GPA's during the term of CSS appear to be higher than the average GPA's of the term following CSS (see CSS - Table 5). This suggests that although CSS may not have a *lasting* impact on students' performance, the course may be affecting their achievement in other courses during the term when they are enrolled in CSS. The question then becomes how to increase the long-term transfer of the skills, strategies, and attitudes taught in CSS.

## CONCLUSIONS

Four conclusions emerge from these data. First, students value CSS as a course and report using the skills, attitudes, and strategies taught. Second, students enrolled in CSS as freshmen are more likely to return as sophomores than students who do not enroll. Third, CSS may have a positive impact on grades earned during the term CSS is taken (Cone & Owens, 1991). Finally, grades in CSS appear to be inconsistent with

cumulative grade averages and students performance in other courses. Enrollment in CSS may not have a lasting impact on students' success as indicated by GPA. Below we discuss several questions related to CSS.

1. **Is the course content sufficiently rigorous?** Students sometimes observe that the content presented in CSS is "common sense." However, while the material may not appear difficult to comprehend, the challenge for most students is actually to apply these skills to their particular situations. The goal is for students to master the skills and attitudes the course is structured to promote. This approach may raise problems, however, because it is clear that students are much more likely to receive higher grades in CSS than in other courses. While this may help these students' overall GPA, it is also possible students could get a false sense of the amount and nature of effort needed to succeed in other courses.

2. **Does the course correctly target the skills needed in other courses?** Obviously, if the skills taught in CSS are not applicable to the study and learning situations students face in other academic courses, it would be unreasonable to expect much change in their academic performance. However, students *do* seem to earn higher grades in other courses during the term they are enrolled in CSS, suggesting that the problem is a lack of transfer rather than inappropriate skills. It may be that the support provided in CSS to apply skills should be continued to encourage transfer across time and situations.

3. **Is one term of the course sufficient?** One possibility is that the course may need to span two semesters instead of one, in order for students' new behaviors and attitudes to become habitual.

4. **Is proper emphasis given to the transfer of the skills learned in the course to other academic settings?** Two generalizations appear warranted from available research on learning improvement (Ford, 1981; Weinstein & Mayer, 1986). First, single track learning improvement programs have limited potential to change students' learning success. Second, programs which are "realistic" are likely to have greater impact on performance. Realism is gained when students apply skills and strategies under similar conditions to their actual study assignments. In addition, effective programs offer significant levels of support over longer periods of time, use a variety of instructional methods (e.g., didactic, modeling, rehearsal, etc.), and present study as a systematic and controllable activity.

   It seems reasonable to conclude that, like most other human capabilities, academic learning processes, skills, strategies, and attitudes will be influenced by a variety of factors. A dilemma faced when planning CSS was whether to focus on information, with the presumption that astute students will recognize it as valuable and attempt to apply it as appropriate, or to spend class time modeling and practicing the various skills. While neither approach may be completely satisfactory, the nature of an academic course in a university environment normally precludes more intrusive approaches, such as coaching students in their study settings.

Given these constraints, CSS was designed to balance the informational and action components. To achieve this balance, one instructional strategy has been to involve students' regular course work. For instance, when discussing text reading, students bring reading assignments from other classes and use them to practice skills like survey and active reading. Similarly, a typical note taking assignment involves students experimenting with new note styles and formats in their lecture courses, then writing a one-page reflection on the results.

5. **Should there be greater attention given to the performance of students in other courses while they are taking the CSS course?** A number of strategies are used to teach students to monitor and evaluate their own performance in other courses. For instance, at times students have been asked to keep "study logs" documenting their study in other courses, "weekly report summaries" describing skills used, or journals reflecting on their progress. Recently, students have been required to report to the class periodically, describing their approaches to study, problems encountered, and solutions attempted. Each of these strategies serves two main purposes. First, they inform the instructor of students' performance in other courses, so that problems can be addressed quickly. Second, students are encouraged to develop a problem-solving approach to learning and study.

A more direct concern is whether study and learning skills can be taught and learned in isolation from actual academic learning situations. While we are not ready to give up efforts to teach the tools for success that many entering college students seem to lack, our attempts do seem hampered by an approach that is decontexualized.

Given that students' performance in other courses seems to improve while they are enrolled in CSS, it appears some transfer occurs. To extend this improvement to subsequent semesters, we can consider what is known about transfer in general. For instance, transfer is enhanced when there is a close match between the learning activity and the actual task; therefore, CSS assignments should be designed to approximate "real" situations as much as possible. While this is already emphasized in the course, there may be additional ways to present CSS material that serve to bridge the gap between theory and practice. For instance, perhaps the class could meet occasionally in a student study lounge instead of a classroom, in order to practice skills "in context."

Secondly, skills and strategies should be practiced often, since repetition improves the likelihood of transfer. In other words, it may not be enough for students to *master* a skill, in the sense of understanding it and demonstrating its use; instead, they may need to hear about it and work with it several times throughout the semester within the structured environment of the class, in order for that skill to become part of their regular study routines.

Finally, it may be worthwhile to organize study support groups which would continue to meet beyond the CSS term, so that students can continue to reinforce the skills, strategies, and attitudes learned in the course. This approach may have an

additional advantage of creating a sense of community among students, which seems to be helpful in developing self-confidence and positive attitudes toward academic achievement.

## CONCLUSIONS

Several themes illustrate the issues, opportunities, and challenges associated with learning improvement programs. In addition, there are some relatively well known conditions associated with programs that influence cognitive behavior in lasting ways (Sherman, 1991a). Resnick (1987) and others have identified program features such as social sharing, making thinking processes overt, and specificity as key elements of successful programs. Below, seven issues are identified followed by discussion.

First, authenticity appears to be important. When programs to train skills, strategies and attitudes are similar to the actual situations in which students live, the likelihood of mastery increases. Authenticity implies that the activities be engaging and reflect the types of learning students typically must address. There should also be active responding and an emphasis on positive attitude.

Second, the context of the program should be similar to the learning situation. While context matching can mean comparable study and living conditions, the issue of context can be much broader. Context can include lifestyle in general as well as the unique features of an institution. For example, an institution that openly promotes help seeking rather than stubborn independence may have more success with learning improvement. When problems are considered a natural part of life and learning, strategies to address problems could be more acceptable personally and socially. Similarly, when institutions offer a wide variety of easily accessible student services it may be that the popularity and effectiveness of those services are greater than when services are obscure. Finally, institutions that are committed to learning as a major mission characterized by regular and significant learner-learner and teacher-learner interactions throughout the institution may develop stronger beliefs and actions oriented to academic success.

Third, transfer, though a consistent goal, is conspicuously absent in follow-up data (e.g. Kearns & Siskind, 1994). Transfer is a challenge in all behavior change programs and has vexed teachers, therapists, and others for decades. Thus, it is not surprising that transfer is not easily achieved.

Fourth, programs should be multidimensional. Using various media, instructional techniques, activities, and processes appears to increase the success potential of change programs. Two benefits are likely from a multidimensional approach. First, using various media increases the potential of reaching students through a preferred message channel. Second, multiple media provide more opportunities to review messages and promote understanding and elaboration. Increased message presentation also ensures content coverage.

Fifth, practice appears to be essential for success. Presentation alone seems almost worthless. However, it is unclear the extent to which practice is needed to generate mastery and transfer. Also unclear is the nature of practice that is most beneficial and the conditions of practice that are most conducive to success.

Sixth, the characteristics of those who may profit from learning improvement programs are unclear. Prime characteristics for consideration include admissions characteristics, experience, prior knowledge, and anxiety. For example, there is evidence that some forms of anxiety are more likely to respond to treatment than others. And, there are indications that ability may influence the assessment and effectiveness of learning improvement (Sherman, 1991b).

Finally, incomplete evaluation of programs appears quite common. Often claims are based on either training or behavioral measurement that cannot be related to the learning improvement programs. The most frequent evaluation problem is probably insufficient follow-up so there is little knowledge about transfer and durability. However, in many reports there are also design problems that preclude drawing conclusions that rule out highly plausible alternative explanations. As a result, it is difficult to develop a sound information base to generate well informed decisions.

The programs we described illustrate all of these issues to some extent as well as efforts to resolve them. The study skills course (CSS) was begun as a traditional study improvement experience but developed to include characteristics more like successful programs. Social activities were added with more explicit and frequent demonstrations of cognitive activity. More recently, additional emphasis has been focused on self-reflection. While CSS does appear to have a positive influence, it is not possible to identify the precise nature of or variables that produce the observed effects. There is a sense that the CSS experience is too confined and perhaps insufficiently contextualized.

The military life style (MLS) program appears to be the most successful of the programs reported and to have the highest potential for transfer. Because the learning improvement programming was added to a program with longstanding traditions and procedures, it may be that the learning improvement efforts were more successful. However, even with this advantage, development has focused on increased authenticity, application of skills, realistic demonstration, and support. And, these students, at times, seem as resistant to help seeking and support services as others.

RSP should have a high success potential. The program was designed to incorporate all the known characteristics of successful learning improvement ventures. One initially missing ingredient was the social interaction and shared experience found in the military program. Development in the RSP has focused on community building. However, there is an institutional context of independence that appears to discourage academic help seeking. While help seekers appeared no more successful than non-seekers, it may be that the help seekers did not act either quickly enough or often enough to make a difference.

In all of these programs, consequation appeared important. For the most part, this meant it was necessary to involve grades as an indicator of and consequence for achievement. This should not be surprising because the goal for all of these programs is to modify behavior in significant and enduring ways. Anytime behavioral patterns are well established, change is difficult and change efforts must include cognitive and affective components (Meichenbaum and Turk, 1987), and, change becomes particularly challenging when behaviors have become well developed habits.

The conclusion we come to is that learning improvement is far from a well developed science. Though considerable information is available about strategies and programs (e.g. Filippo & Caverly, 1991), there is much we need to learn to ensure successful intervention with all students. Currently, it seems that programs should include more than skill instruction, be authentic within the context of students' lives, have clearly defined consequences, and be relatively extensive in terms of time, experience, and support. But, to advance our understanding of those characteristics and conditions that result in enduring change, learning improvement programs will have to address more personal and program variables much more carefully.

## RSP - Table 1

## Means for Study Survey by Treatment and Comparison Groups and by Time

| Scale* | Treatment 90-91 | | | Treatment 91-92 | | | Comparison 90-91 | | |
|---|---|---|---|---|---|---|---|---|---|
| | T1** | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| Total | 169.7 | 167.5 | 172.2 | 166.4 | 167.4 | 171.8 | 161.9 | 168.3 | 168.4 |
| Meaning Orient | 45.2 | 41.4 | 42.9 | 42.1 | 43.1 | 42.7 | 41.8 | 43.7 | 43.9 |
| Deep Approach | 10.6 | 9.6 | 9.7 | 9.5 | 10.1 | 10.3 | 10.0 | 10.0 | 10.3 |
| Relating Ideas | 12.2 | 10.7 | 10.6 | 10.7 | 10.7 | 10.5 | 10.6 | 12.4 | 11.7 |
| Use Evidence | 10.6 | 10.0 | 10.8 | 11.1 | 11.1 | 10.6 | 10.4 | 10.8 | 10.7 |
| Intrinsic Motv | 11.8 | 11.2 | 11.9 | 10.9 | 11.3 | 11.3 | 10.9 | 10.6 | 11.1 |
| Reproducing Orn | 42.6 | 43.0 | 42.6 | 43.3 | 42.5 | 43.6 | 40.9 | 41.4 | 41.3 |
| Surface Apprch | 17.0 | 16.3 | 16.3 | 17.1 | 16.1 | 16.7 | 15.2 | 15.7 | 15.3 |
| Syllabus Bound | 6.8 | 6.9 | 6.9 | 6.8 | 6.8 | 7.0 | 6.4 | 6.3 | 6.1 |
| Fear Failure | 9.4 | 9.5 | 9.3 | 9.0 | 9.0 | 9.1 | 9.6 | 9.9 | 10.3 |
| Extrinsic Motv | 9.5 | 10.3 | 10.1 | 10.4 | 10.7 | 10.8 | 9.6 | 9.6 | 9.7 |
| Achieving Ornt | 36.9 | 36.4 | 39.7 | 35.2 | 36.6 | 38.1 | 34.2 | 35.4 | 36.3 |
| Strategic Appr | 8.0 | 9.0 | 8.8 | 7.9 | 8.2 | 8.7 | 7.1 | 7.7 | 8.1 |
| Disorg Study | 13.6 | 12.4 | 13.4 | 12.3 | 12.4 | 12.6 | 12.5 | 13.4 | 13.7 |
| Neg Att Study | 7.5 | 8.5 | 9.1 | 7.2 | 7.6 | 8.4 | 7.6 | 7.6 | 7.9 |
| Achievement Motv | 7.8 | 7.6 | 8.5 | 7.8 | 8.4 | 8.4 | 7.0 | 6.7 | 6.5 |
| Style/Pathl Ln | 44.9 | 46.7 | 46.9 | 45.8 | 45.3 | 47.4 | 45.0 | 47.7 | 46.9 |
| Comprehnsn Lrn | 9.8 | 10.9 | 11.0 | 10.5 | 10.8 | 11.2 | 10.0 | 11.0 | 11.2 |
| Globetrotting | 11.6 | 12.9 | 12.9 | 12.3 | 12.4 | 13.1 | 12.3 | 14.0 | 12.7 |
| Operation Lrgn | 10.8 | 10.3 | 10.9 | 10.5 | 10.4 | 10.6 | 10.4 | 10.3 | 10.3 |
| Improvidence | 12.6 | 12.6 | 12.1 | 12.4 | 11.7 | 12.4 | 12.2 | 12.4 | 12.7 |

* **Low scores are better. Coding scheme is : 0 - Most like me; 4 - Least like me.**

** **T1 - Beginning of Fall Term; T2 - Beginning of Spring Term; T3 - End of Spring Term**

## RSP - Table 2

## Means for Student Adaptation to College Questionnaire (SACQ) by Treatment and Comparison Groups and by Time Separated by Black and White Ethnic Identity

| | | Treatment 90-91 | | | | Treatment 91-92 | | | Comparison 90-91 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scale* | T1** | X | T2 | T3 | X | T1 | T2 | T3 | T1 | T2 | T3 |
| Full Scale | BL 407 | 424-436 | 436 | 386 | 427-432 | 437 | 404 | 395 | 458 | 426 | 417 |
| | WH 401 | | 418 | 405 | | 440 | 424 | 423 | 402 | 429 | 435 |
| Academic Adj | BL 138 | 144-148 | 149 | 128 | 144-148 | 153 | 137 | 135 | 158 | 149 | 139 |
| | WH 139 | | 140 | 131 | | 157 | 146 | 147 | 138 | 133 | 131 |
| Social Adj | BL 130 | 127-133 | 138 | 128 | 128-135 | 129 | 126 | 125 | 139 | 133 | 135 |
| | WH 117 | | 129 | 129 | | 125 | 129 | 130 | 120 | 140 | 147 |
| Personal Emot | BL 85 | 91-98 | 91 | 76 | 94-97 | 96 | 88 | 82 | 98 | 87 | 85 |
| | WH 91 | | 92 | 93 | | 95 | 89 | 88 | 88 | 98 | 91 |
| Attachment | BL 102 | 105-110 | 106 | 96 | 101-108 | 107 | 100 | 96 | 113 | 107 | 106 |
| | WH 96 | | 102 | 97 | | 110 | 106 | 104 | 101 | 118 | 119 |

* Low scores indicate better adjustment

** T1 - Beginning of Fall Term; T2 - Beginning of Spring Term; T3 - End of Spring Term

X SACQ raw scores at 50th perentile. Male and Female raw scores were combined by selecting the highest and lowest scores in the range given for both genders. Norms not available for second year of study.

## RSP - Table 3

### Enrollment and Term GPA's - 1990-91 RSP and Comparison Groups

| | Treatment | Comparison | University |
|---|---|---|---|
| Fall 1990 Term GPA | 1.86 27* | 2.03 24 | 2.39 4182 |
| Fall 1990 % Enrolled | 100.0% | 100.0% | 100.0% |
| Spring 1991 Term GPA | 1.82 27 | 1.96 22 | 2.36 4064 |
| Spring 1991 % Enrolled | 100.0% | 95.8% | 97.2% |
| Fall 1991 Term GPA | 1.79 23 | 1.81 22 | 2.47 3702 |
| Fall 1991 % Enrolled | 85.2% | 91.7% | 88.5% |
| Spring 1992 Term GPA | 2.06 20 | 2.09 19 | 2.65 3446 |
| Spring 1992 % Enrolled | 74.1% | 79.2% | |
| Fall 1992 % Enrolled | 63.0% (17) | 75.0% (18) | 79.6% (3328) |

* = Number of students

## RSP - Table 4

### Enrollment and Term GPA's - 1990-91 RSP, Comparison and University Freshman Groups BLACK AND WHITE Ethnic Identification

| | Treatment | | Comparison | | University | |
|---|---|---|---|---|---|---|
| | *Black* | *White* | *Black* | *White* | *Black* | *White* |
| Fall 1990 Term GPA | 1.60 18* | 2.33 8 | 2.03 15 | 2.02 9 | 1.74 283 | 2.45 3515 |
| Fall 1990 % Enrolled | 100.0% | 100.0% | 100.00% | 100.00% | 100.00% | 100.00% |
| Spring 1991 Term GPA | 1.53 18 | 2.36 8 | 1.74 14 | 2.35 8 | 1.76 279 | 2.42 3407 |
| Spring 1991 % Enrolled | 100.0% | 100.0% | 93.3% | 88.9% | 98.6% | 96.9% |
| Fall 1991 Term GPA | 1.61 16 | 2.22 6 | 1.62 15 | 2.21 7 | 1.70 229 | 2.54 3129 |
| Fall 1991 % Enrolled | 88.9% | 75.0% | 100.0% | 77.8% | 80.9% | 89.0% |
| Spring 1992 Term GPA | 1.76 14 | 2.98 5 | 1.80 13 | 2.72 6 | 2.01 202 | 2.69 2920 |
| Spring 1992 % Enrolled | 77.8% | 62.5% | 86.7% | 66.7% | 71.4% | 83.1% |
| Fall 1992 % Enrolled | 61.1% (11) | 62.5% (5) | 80.0%(12) | 66.7% (6) | 67.1% (190) | 80.4% (2825) |

* = Number of Students

## MLS - Table 1

### Comparison of Means on Entry Characteristics of Students Entering '87 through '92 with freshman entering in '86

| Entry Characteristics | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|
| High School Class Size | 369 | 393 | 354 | 384 | 311* | 341 | 274* |
| High School Percentage | 15% | 16% | 18%* | 17% | 16% | 18% | 17% |
| High School GPA | 3.30 | 3.28 | 3.30 | 3.34 | 3.40 | 3.38 | 3.41 |
| SAT Verbal Score | 526 | 531 | 534 | 527 | 520 | 532 | 525 |
| SAT Math Score | 606 | 617 | 604 | 614 | 599 | 594 | 597 |
| SAT Total Score | 1131 | 1148 | 1138 | 1141 | 1120 | 1126 | 1121 |

* NOTE: Asterisk indicates significant difference at $p <= .05$.



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## MLS - Table 2

## Academic Performance Data
## using 1986 as the Comparison

| *Freshman Year Academic Performance* | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|
| Fall GPA Freshman Year | 2.12 | 2.29* | 2.27* | 2.37* | 2.13 | 2.47* | 2.79* |
| Winter GPA Freshman Year | 2.32 | 2.34 | | | | | |
| Spring GPA Freshman Year | 2.21 | 2.35 | 2.06 | 2.28 | 2.21 | 2.48* | |
| Overall GPA End 1st Year | 2.30 | 2.39 | 2.22 | 2.33 | 2.24 | 2.47* | |
| ***Second Year Academic Performance*** | | | | | | | |
| Fall GPA Second Year | 2.17 | 2.37 | 2.11 | 2.34* | 2.21 | 2.29 | |
| Spring GPA Second Year | 2.35 | 2.34 | 2.38 | 2.36 | 2.53 | | |
| Overall GPA End 2nd Year | 2.40 | 2.38 | 2.31 | 2.46 | 2.36 | | |
| ***Third Year Academic Performance*** | | | | | | | |
| Fall GPA Third Year | 2.39 | 2.47 | 2.55 | 2.51 | 2.41 | | |
| Spring GPA Third Year | 2.51 | 2.60 | 2.57 | 2.70 | | | |
| Overall GPA End 3rd Year | 2.48 | 2.48 | 2.47 | 2.52 | | | |
| ***Fourth Year Academic Performance*** | | | | | | | |
| Fall GPA Fourth Year | 2.66 | 2.65 | 2.61 | 2.63 | | | |
| Spring GPA Fourth Year | 2.75 | 2.73 | 2.79 | | | | |
| Overall GPA End 4th Year | 2.55 | 2.58 | 2.50 | | | | |
| *Four-Year Graduation Rate* | 24% | 24% | 24% | | | | |
| ***Fifth Year Academic Performance*** | | | | | | | |
| Fall GPA Fifth Year | 2.74 | 2.55 | 2.66 | | | | |
| Spring GPA Fifth Year | 2.77 | 2.78 | | | | | |
| Overall GPA End 5th Year | 2.51 | 2.50 | | | | | |
| *Five-Year Graduation Rate* | 35% | 36% | | | | | |
| ***Overall Graduation Rate*** | 59% | 60% | | | | | |

* NOTE: Asterisk indicates significant difference at $p <= .05$.



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## CSS - Table 1

### Summary of Skills Taught in CSS

| | Preparation | Action | Follow-up |
|---|---|---|---|
| **Reading** | Survey; set study goals based upon course expectations, prior knowledge, and personal interest | Study questions; active reading; relating to current knowledge; outlining; network representations; notes, restating, summarizing answering questions; rereading | Study summaries; test-like situations; goal checks; answering questions |
| **Listening and Note-taking** | Review notes; read related material; prepare personal orientation; determine speaker's orientation; prepare questions | Find main points; compare information to current knowledge; ask questions; relate details to main points; review speaker's points; make notes | Reconsider immediately; review; relate to other material; discuss with others; evaluate main points; summarize |
| **Test-Taking** | Learn material; find out about format of test; practice recall; do practice tests | Preview test; read and follow directions; budget time; do easy items first; check all work | Learn any material missed; evaluate preparation strategy; evaluate test-taking skills |
| **Memory** | Learn information; identify material to be memorized; choose appropriate strategy | Chunking; discovering organization; imaging; analogies; restating; story schemes; acronyms; loci; rhymes; over learning; rehearsal; reconstruction | Practice; self-testing; review |

## CSS - Table 2

### Percent Retention from First to Second Year for Black Students Taking and Not Taking CSS

| | Taking CSS | | | Not Taking CSS | | |
|---|---|---|---|---|---|---|
| **Group** | **Number 1st Fall** | **Number 2nd Fall** | **%** | **Number 1st Fall** | **Number 2nd Fall** | **%** |
| **Fall 1989** | 43 | 36 | 83.7 | 175 | 130 | 74.3 |
| **Fall 1990*** | 18 | 16 | 88.9 | 183 | 140 | 76.5 |
| **Fall 1991*** | 52 | n/a | - | 166 | n/a | - |
| **Summer 1990** | 78 | 69 | 88.5 | 201 | 156 | 77.6 |
| **Summer 1991** | 37 | n/a | - | 218 | n/a | - |

* Excluding the students from the previous summer.

## CSS - Table 3

### Average GPA of Black Students for Terms During and Immediately Following Taking CSS Course[1]

| | GPA at End of Term of CSS | | GPA at End of Next Term | |
|---|---|---|---|---|
| Group | Term | Overall | Term | Overall |
| Fall, 1989 | 1.73 | 1.78 | 1.44 | 1.68 |
| Fall, 1990 | 1.95 | 1.96 | 1.63 | 1.88 |
| Fall, 1991 | 2.07 | 2.07 | n/a | n/a |
| Summer, 1990 | 2.62 | 2.62 | 1.52 | 1.96 |
| Summer, 1991 | 2.95 | 2.95 | 1.48 | 2.01 |

[1]Since one of the motivations for offering this course is to increase minority student retention, the data have been analyzed primarily by race. The number of white students taking the course is too small to make similar figures meaningful.

## CSS - Table 4

### Comparisons of Average GPA's of Black Students, Computed With and Without CSS Grade

| Group | GPA with CSS grade, for term of CSS course | GPA without CSS grade, for term of CSS course |
|---|---|---|
| Fall, 1989 | 2.07 | 1.72 |
| Fall, 1990 | 2.14 | 1.68 |
| Fall, 1991 | 2.17 | 1.85 |
| Summer, 1990 | 2.99 | 2.50 |
| Summer, 1991 | 2.94 | 2.72 |

* Freshman Rule[2] may not yet have been applied to these GPA's

[2] A maximum of 6 credit hours may be omitted from the freshman student's GPA calculation. Only grades below a C- may be omitted. According to the Undergraduate Catalog, the Freshman Rule "is intended to assist students who, during their freshman year, are enrolled in courses for which they are ill prepared or are initially enrolled in majors that they subsequently change" (p. 31).

## CSS - Table 5

### Differences Between Average Term GPA's of Record and GPA's without CSS Grade, and GPA of Term Following Taking CSS Course

| Group | Difference between average term GPA and GPA without CSS grade | Difference between average term GPA and GPA of term following taking CSS |
|---|---|---|
| **Fall, 1989** | .35 | .63 |
| **Fall, 1990** | .46 | .51 |
| **Fall, 1991** | .32 | n/a |
| **Summer, 1990** | .49 | 1.47* |
| **Summer, 1991** | .22 | 1.46* |

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